



BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Barnstable

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

Produced in 2004



BioMap and Living Waters:

Guiding Land Conservation for Biodiversity in Massachusetts

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* Depending on the location of Core Habitats, your city or town may not have all of these sections.

Spring Salamander
(*Gyrinophilus porphyriticus*)
Species of Special Concern

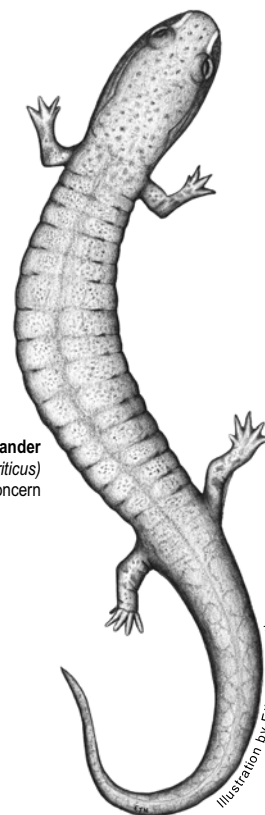


Illustration by Ethan Nedean

Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.



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Massachusetts Division of Fisheries and Wildlife
North Drive, Westborough, MA 01581
Tel: (508) 792-7270, Ext. 200 Fax: (508) 792-7821
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Introduction

In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generations to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, **BioMap** and **Living Waters**. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate **Core Habitats** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.



Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the **riparian areas**, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as **Supporting Natural Landscape** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was



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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, *Critical Supporting Watersheds* highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap		
Biodiversity Group	Species and Verified Natural Community Types	
	Included in BioMap	Total Statewide
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types
Living Waters		
Biodiversity Group	Species	
	Included in Living Waters	Total Statewide
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant



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species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- **Endangered** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- **Threatened** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- **Special Concern** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial **watch list** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The **Massachusetts Natural Heritage Atlas** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

communities reflects the documented number and acreages of each community type in the state:

- **Critically Imperiled** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- **Imperiled** communities typically have 6-20 sites or few remaining acres in the state.
- **Vulnerable** communities typically have 21-100 sites or limited acreage across the state.
- **Secure** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.



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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific *fact sheets* at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be

very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone 508-792-7270, Ext. 200

by Fax: 508-792-7821

by Email: natural.heritage@state.ma.us.

by Mail: North Drive
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
 - * Field guides
 - * Natural Heritage Atlas, and more!



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BioMap: Species and Natural Communities

Barnstable

Core Habitat BM1269

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Coastal Interdunal Marsh/Swale		Critically Imperiled
Estuarine Intertidal: Salt Marsh		Vulnerable
Maritime Dune Community		Imperiled
Maritime Juniper Woodland/Shrubland		Critically Imperiled
Maritime Oak - Holly Forest/Woodland		Critically Imperiled
Maritime Pitch Pine On Dunes		Critically Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Brackish Bulrush	<i>Scirpus cylindricus</i>	Watch Listed
Plymouth Gentian	<i>Sabatia kennedyana</i>	Special Concern
Swamp Oats	<i>Sphenopholis pensylvanica</i>	Threatened

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Coastal Heathland Cutworm	<i>Abagrotis nefascia benjamini</i>	Special Concern

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Common Tern	<i>Sterna hirundo</i>	Special Concern
Diamondback Terrapin	<i>Malaclemys terrapin</i>	Threatened
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	Threatened
Least Tern	<i>Sterna antillarum</i>	Special Concern
Piping Plover	<i>Charadrius melodus</i>	Threatened



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BioMap: Species and Natural Communities

Barnstable

Core Habitat BM1291

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
New England Blazing Star	<i>Liatris scariosa</i> var. <i>novae-angliae</i>	Special Concern
Pondshore Knotweed	<i>Polygonum puritanorum</i>	Special Concern
Redroot	<i>Lachnanthes carolina</i>	Special Concern
Rough Panic-grass	<i>Dichanthelium scabriusculum</i>	Threatened

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Comet Darner	<i>Anax longipes</i>	Special Concern
New England Bluett	<i>Enallagma laterale</i>	Special Concern
Oak Hairstreak	<i>Satyrium favonius</i>	Special Concern

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern

Core Habitat BM1293

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Estuarine Intertidal: Salt Marsh		Vulnerable

Core Habitat BM1334

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		



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Barnstable

Core Habitat BM1338

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		

Core Habitat BM1343

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Coastal Atlantic White Cedar Swamp		Imperiled
Coastal Plain Pondshore		Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Heartleaf Twayblade	<i>Listera cordata</i>	Endangered
Inundated Horned-Sedge	<i>Rhynchospora inundata</i>	Threatened
Long-Beaked Bald-Sedge	<i>Rhynchospora scirpoides</i>	Special Concern
Mattamuskeet Panic-Grass	<i>Dichanthelium dichotomum ssp. mattamuskeetense</i>	Endangered
Plymouth Gentian	<i>Sabatia kennedyana</i>	Special Concern
Pondshore-dodder	<i>Cuscuta coryli</i>	Watch Listed
Redroot	<i>Lachnanthes caroliana</i>	Special Concern
Reticulate Nut-Sedge	<i>Scleria reticularis</i>	Watch Listed
Short-Beaked Bald-Sedge	<i>Rhynchospora nitens</i>	Threatened
Slender Marsh Pink	<i>Sabatia campanulata</i>	Endangered
Terete Arrowhead	<i>Sagittaria teres</i>	Special Concern
Torrey's Beak-Sedge	<i>Rhynchospora torreyana</i>	Endangered
Wright's Panic-grass	<i>Dichanthelium wrightianum</i>	Special Concern



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BioMap: Species and Natural Communities

Barnstable

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Barrens Buckmoth	<i>Hemileuca maia</i>	Special Concern
Comet Darner	<i>Anax longipes</i>	Special Concern
New England Bluet	<i>Enallagma laterale</i>	Special Concern
Pine Barrens Bluet	<i>Enallagma recurvatum</i>	Threatened
Water-Willow Stem Borer	<i>Papaipema sulphurata</i>	Threatened

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Northern Parula	<i>Parula americana</i>	Threatened

Core Habitat BM1344

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Coastal Plain Pondshore		Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Papillose Nut-Sedge	<i>Scleria pauciflora var caroliniana</i>	Endangered

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Comet Darner	<i>Anax longipes</i>	Special Concern

Core Habitat BM1349

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		



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BioMap: Species and Natural Communities

Barnstable

Core Habitat BM1351

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		

Core Habitat BM1352

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Water-Willow Stem Borer	<i>Papaipema sulphurata</i>	Threatened

Core Habitat BM1354

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		

Core Habitat BM1355

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Coastal Plain Pondshore		Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Redroot	<i>Lachnanthes caroliana</i>	Special Concern
Torrey's Beak-Sedge	<i>Rhynchospora torreyana</i>	Endangered

Core Habitat BM1357

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Terete Arrowhead	<i>Sagittaria teres</i>	Special Concern



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Barnstable

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Water-Willow Stem Borer	<i>Papaipema sulphurata</i>	Threatened
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Core Habitat BM1359

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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New England Bluet	<i>Enallagma laterale</i>	Special Concern
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Core Habitat BM1360

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Water-Willow Stem Borer	<i>Papaipema sulphurata</i>	Threatened
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Core Habitat BM1361

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Coastal Plain Pondshore		Imperiled
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Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Small Site for Rare Plant		
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Core Habitat BM1375

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Small Site for Rare Plant		
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BioMap: Species and Natural Communities

Barnstable

Core Habitat BM1377

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern
Northern Parula	<i>Parula americana</i>	Threatened
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern

Core Habitat BM1379

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		

Core Habitat BM1392

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Water-Willow Stem Borer	<i>Papaipema sulphurata</i>	Threatened

Core Habitat BM1396

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Least Tern	<i>Sterna antillarum</i>	Special Concern
Piping Plover	<i>Charadrius melodus</i>	Threatened

Core Habitat BM1397

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Common Tern	<i>Sterna hirundo</i>	Special Concern
Least Tern	<i>Sterna antillarum</i>	Special Concern
Piping Plover	<i>Charadrius melodus</i>	Threatened



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BioMap: Species and Natural Communities

Barnstable

Core Habitat BM1400

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Least Tern	<i>Sterna antillarum</i>	Special Concern
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Core Habitat BM1406

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Small Site for Rare Plant		
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Core Habitat BM1413

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Common Tern	<i>Sterna hirundo</i>	Special Concern
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Least Tern	<i>Sterna antillarum</i>	Special Concern
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Piping Plover	<i>Charadrius melodus</i>	Threatened
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Roseate Tern	<i>Sterna dougallii</i>	Endangered
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Core Habitat BM1300-1303, BM1305-1310, BM1317, BM1319, and BM1321

Communities

Estuarine Intertidal: Salt Marsh		Vulnerable
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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1269

The size of this area, the mix of natural communities, and their excellent condition make this coastal Core Habitat especially important for protecting native biodiversity. The area encompasses both Sandy Neck and the Great Marshes, and supports significant populations of Diamondback Terrapins and Eastern Spadefoot toads, as well as breeding Least Terns, Common Terns, and one of the largest concentrations of breeding Piping Plovers in the state. It also includes habitat for rare coastal moth species, as well as rare plants such as the Brackish Bulrush. Much of this Core Habitat is on protected municipal land, and further land protection would help ensure the viability of the rare species found here.

Natural Communities

This Core Habitat contains a 1000-acre dune system with a large complex of Maritime Forest communities. Across a three-mile stretch of Maritime Dunes, there are over 25 swales supporting excellent Coastal Interdunal Marsh vegetation. The condition and quality of all of these communities are excellent. Behind the barrier beach and maritime communities is a part of the largest contiguous acreage of Estuarine Intertidal Salt Marsh on Cape Cod. The Salt Marsh community type is a graminoid-dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. Here the Salt Marsh contains an excellent variety of microhabitats and consequently an excellent diversity of plants, algae, and animals. It is well-buffered by natural lands, including many other high-quality natural communities. The size of this area, the mix of natural communities, and their excellent condition make this Core Habitat especially important for supporting native biodiversity.

Plants

The Brackish Bulrush is a member of the sedge family that is rare throughout the New England region. It is found in coastal wetland habitats, and is found here near the edge of a large salt marsh. Also within this Core Habitat is a population of the Threatened Swamp Oats, which grows in freshwater forested wetlands, usually near the coast.

Invertebrates

This Core Habitat includes habitat for rare moths such as the Coastal Heathland Cutworm. It is likely that Sandy Neck and the Great Marsh are inhabited by additional rare coastal moth species, such as the Dune Noctuid moth, the Drunk Apamea moth, the Spartina Borer moth, and other species.



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BioMap: Core Habitat Summaries

Barnstable

Vertebrates

This Core Habitat contains widespread salt marsh, extensive tidal creeks, beaches, dune areas, shallow waters, and sandy uplands that support Diamondback Terrapins. Approximately 100 nesting observations are known from the late 1970s. Multiple sightings of adults have been documented more recently such that Sandy Neck supports one of the largest Diamondback Terrapin populations in Massachusetts. It also supports significant populations of Eastern Spadefoot toads. Potential threats to Diamondback Terrapins include mortality caused by off-road vehicles and entrapment by marine debris. Off-road vehicle use in the back-dune areas of Sandy Neck may also impact Eastern Spadefoot toads.

Sandy Neck supports breeding Least Terns, Common Terns, and one of the largest concentrations of breeding Piping Plovers in the state. Potential threats to nesting coastal waterbirds include predation and human disturbance. Off-road vehicle use at this site is an ongoing management issue. Annual protection from these threats is needed.

Core Habitat BM1291

Spanning the towns of Barnstable and Sandwich, this Core Habitat is one of the last remaining undeveloped tracts of land of its size on Cape Cod. It encompasses pine/oak woodlands and barrens, as well as Coastal Plain ponds. Together these natural communities provide significant habitat for Eastern Box Turtles, rare invertebrates like the New England Bluet damselfly, and rare plants such as the Endangered Harsh Panic-grass.

Plants

One of only two known Massachusetts populations of the Threatened Rough Panic-grass occurs within a small portion of this Core Habitat. The New England Blazing Star, once more common in Massachusetts, can still be found here as well.

Invertebrates

This Core Habitat includes a diversity of habitats for rare invertebrate species, including Coastal Plain pondshores inhabited by the Comet Darner dragonfly and the New England Bluet damselfly. Open areas vegetated with shrubby oaks and wild flowers, such as the Barnstable Airport grounds, are habitat for the rare Oak Hairstreak butterfly.

Vertebrates

This large Core Habitat encompasses pine-oak woodlands and barrens characteristic of Cape Cod. The area provides significant habitat for Eastern Box Turtles. This Core Habitat supports significant habitat for a breeding population of the Eastern Towhee, a rapidly declining songbird in eastern North America.



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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1293

Natural Communities

This Core Habitat is part of a complex that makes up the largest contiguous acreage of Estuarine Intertidal Salt Marsh on Cape Cod. The Salt Marsh community type is a graminoid-dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. Here the Salt Marsh contains an excellent variety of microhabitats and consequently an excellent diversity of plants, algae, and animals. It is well-buffered by natural lands, including many other high-quality natural communities.

Core Habitat BM1343

Spanning Barnstable and Yarmouth, this Core Habitat contains a cluster of Coastal Plain Ponds considered by many experts to be the best example of this globally rare community type in the world. Here the pondshores support a rare moth species, rare dragonfly and damselfly species, as well as outstanding areas of plant biodiversity. The ponds are surrounded by an extensive Pitch Pine-Oak Forest that supports other rare invertebrates, such as the Barrens Buckmoth. While some of this Core Habitat is on protected land, conservation of the remaining unprotected areas would help ensure the long-term viability of the rare species found here.

Natural Communities

This Core Habitat contains a cluster of Coastal Plain Pondshore communities in Barnstable considered by many experts to be the best in the world. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. The ponds here are associated with many rare plant species, are well-buffered by an extensive Pitch Pine-Oak Forest, and experience minimal disturbances. In Yarmouth, this Core Habitat also includes a good-quality Coastal Atlantic White Cedar Swamp and another good-quality Coastal Plain Pondshore community.

Plants

Dense clusters of rare plant occurrences grow around Coastal Plain pondshores within this Core Habitat. Some characteristic members of this globally rare community type include Plymouth Gentian, Redroot, Reticulate Nut-Sedge, and Terete Arrowhead. The Endangered Torrey's Beak-Sedge and Mattamuskeet Panic-Grass are two of the more uncommon plant species found within this rich hub of plant biodiversity.



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BioMap: Core Habitat Summaries

Barnstable

Invertebrates

Coastal Plain ponds within this Core Habitat, including Flintrock, Israel, Little Israel, Mary Dunn, Lamson, Little Sandy, Horse, and Bassetts Lot Ponds, as well as numerous smaller ponds, all provide habitat for rare dragonflies and damselflies including the Comet Darner, New England Bluet, and Pine Barrens Bluet, as well as for the Water-willow Stem Borer moth. All of these ponds are located within a large area of relatively undeveloped landscape, allowing for unimpeded dispersal of their rare species inhabitants. In addition, the terrestrial habitats within this Core Habitat include pitch pine - scrub oak barrens, which are inhabited by the Barrens Buckmoth and other rare barrens invertebrates.

Vertebrates

This Core Habitat contains a small area of wooded swamp and upland forest adjacent to Little Sandy Pond and a portion of Howes River. This area has supported breeding habitat for Northern Parula warblers in the past, and needs protection from further fragmentation by development.

Core Habitat BM1344

Natural Communities

This Core Habitat contains a small cluster of Coastal Plain Pondshore communities in good condition. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. Although within the zone of groundwater contribution for one public water supply well, the ponds here have fairly intact and species-rich pondshores, have only localized disturbances near the swimming beach, and are well-buffered by natural vegetation.

Plants

One of the state's few occurrences of the Endangered Papillose Nut-Sedge is growing within a portion of this Core Habitat.

Invertebrates

This Core Habitat includes the Hathaway Ponds, which are habitat for the rare Comet Darner dragonfly. Although surrounded by development, this Core Habitat is located less than 2 km from habitat for the Comet Darner within Core Habitat in Barnstable and Yarmouth, which allows for dispersal of individual dragonflies between these two locations. While about one third of this Core Habitat is on protected municipal land, conservation of the remaining unprotected area is desirable to increase the amount of contiguous protected habitat.



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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1352

Invertebrates

This Core Habitat includes an area of swampy, shallow wetlands with Water-willow to the north and west of Bearse Pond that is habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. Although relatively small and surrounded by development, this Core Habitat is located less than 10 km from other habitats for the Water-willow Stem Borer moth, including Core Habitats in Barnstable and Yarmouth. This proximity allows for occasional movement of individual moths between all of these areas, which is important to maintain a viable population of this species. Apparently most of this Core Habitat is on unprotected land.

Core Habitat BM1355

Natural Communities

This Core Habitat contains a Coastal Plain Pondshore community in fair condition despite a moderate level of human disturbances and its location within the zone of groundwater contribution of one public water supply well. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow.

Plants

One of only a very few Massachusetts populations of the Endangered Torrey's Beak-Sedge is growing within this Core Habitat.

Core Habitat BM1357

Plants

The Terete Arrowhead (Species of Special Concern) is a semi-aquatic pondshore species found in a shallow cove in this Core Habitat.

Invertebrates

This Core Habitat includes the shoreline of Wequaquet Lake and adjacent swampy, shallow wetlands that are habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. Although relatively small and surrounded by development, this Core Habitat is located less than 10 km from other habitats for the Water-willow Stem Borer moth, including Core Habitats in Barnstable and Yarmouth. This proximity allows for occasional movement of individual moths between all of these locations, which is important to maintain a viable population of this species. This Core Habitat appears to be unprotected.



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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1359

Invertebrates

This Core Habitat includes Muddy Pond, which is habitat for the rare New England Bluet damselfly. Although surrounded by development, this Core Habitat is located less than 5 km from populations of the New England Bluet at Little Pond in Barnstable and at Washburn Pond in Mashpee, which allows for occasional dispersal of damselflies between these three areas. This flow of individuals between ponds improves the long-term viability of each population. It appears that none of this Core Habitat is on protected land.

Core Habitat BM1360

Invertebrates

This Core Habitat includes Hamblin Pond and adjacent swampy, shallow wetlands that are habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. Although very small and surrounded by development, this Core Habitat is located less than 10 km from other habitats for the Water-willow Stem Borer moth, including Core Habitats in Barnstable, Sandwich, and Mashpee. This proximity allows for occasional movement of individual moths between all of these sites, which is important to maintain a viable population of this species. This Core Habitat appears to be unprotected.

Core Habitat BM1361

Natural Communities

The Coastal Plain Pondshore community in this Core Habitat is part of a cluster of ponds with some undeveloped areas around them. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. The pond here has natural vegetation around much of it; some natural vegetation occurs around most of the ponds in the cluster, helping to protect the shorelines. The pond in this Core Habitat and all the ponds in the cluster are within the zones of groundwater contribution to several public water supply wells and are subject to lowering of the water table as a result. Each pond in the cluster contributes habitat for rare and more common species characteristic of Coastal Plain Ponds; together they can all contribute to maintaining the overall biodiversity of the ponds of the area.

Core Habitat BM1377

Vertebrates

This Core Habitat encompasses pine-oak forest, freshwater wetlands, riparian habitat, and abandoned cranberry bogs. Although relatively small in area, this is one of the larger blocks of undeveloped wildlife habitat remaining in this portion of the mid-Cape area. It provides habitat for the Northern Parula warbler, Spotted Turtles, and Four-toed Salamanders.



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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1392

Invertebrates

This Core Habitat includes a cluster of vernal pools and swampy, shallow wetlands with Water-willow that are habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. Although relatively small and surrounded by development, this Core Habitat is located less than 10 km from other habitats for the Water-willow Stem Borer moth, including Core Habitats in Mashpee and Barnstable. This proximity allows for occasional movement of individual moths between all of these sites, which is important to maintain a viable population of this species. This Core Habitat appears to be unprotected.

Core Habitat BM1396

Vertebrates

Dunbar Point (Kalmus Park) supports breeding Piping Plovers, and, until very recently when it was disrupted by predators, the largest Least Tern colony in the state. Major threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance (including dogs), and predation. If annual protection from threats is provided, terns may recolonize the site.

Core Habitat BM1397

Vertebrates

Long Beach supports breeding Piping Plovers, Least Terns and Common Terns. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.

Core Habitat BM1400

Vertebrates

In some years, Squaw Island supports a breeding colony of Least Terns. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.



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BioMap: Core Habitat Summaries

Barnstable

Core Habitat BM1413

Vertebrates

Dead Neck and Sampsons Island support a diverse coastal waterbird breeding colony that includes Black-crowned Night-Herons, Snowy Egrets, Great Egrets, Herring Gulls, Great Black-backed Gulls, Common Terns, Least Terns, Piping Plovers, and, in some years, Roseate Terns. This is one of the largest breeding sites in the state for Black-crowned Night-Herons, Common Terns, Least Terns, Herring Gulls, and Piping Plovers. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance (including dogs), and predation. Annual protection from these threats is needed.

Core Habitat BM1300-1303, BM1305-1310, BM1317, BM1319, and BM1321

Natural Communities

This series of Core Habitats makes up the largest contiguous acreage of Estuarine Intertidal Salt Marsh on Cape Cod. The Salt Marsh community type is a graminoid-dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example of Salt Marsh contains an excellent variety of microhabitats and, consequently, an excellent diversity of plants, algae, and animals. It is well-buffered by natural lands, including many other high-quality natural communities.



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Living Waters: Species and Habitats

Barnstable

Core Habitat LW087

Fishes

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Bridle Shiner	<i>Notropis bifrenatus</i>	Special Concern
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Core Habitat LW226

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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Eastern Pondmussel	<i>Ligumia nasuta</i>	Special Concern
Tidewater Mucket	<i>Leptodea ochracea</i>	Special Concern
Triangle Floater	<i>Alasmidonta undulata</i>	Special Concern



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Living Waters: Core Habitat Summaries

Barnstable

Core Habitat LW087

This Core Habitat supports one of two known populations of Bridle Shiner in the Cape Cod Watershed. This fish Species of Special Concern is thought to be in decline in eastern Massachusetts as it was found at only 23% of its former sites in recent surveys. The Bridle Shiner is typically found in well-vegetated, quiet waters. It feeds on small aquatic insects and other invertebrates, and is an important part of the freshwater ecosystem as prey for larger fishes. This population of Bridle Shiner in Mill Pond has persisted since at least 1962. This pond also contains habitat for Alewife, a fish that spends much of its life in coastal waters but returns to freshwaters to spawn (breed).

Core Habitat LW226

Middle Pond and Mystic Lake are two natural kettlehole ponds that are connected by a shallow channel. These sandy-bottomed, warmwater ponds are believed to be some of the most diverse and productive water bodies for freshwater mussels in southeastern Massachusetts, supporting seven of the state's twelve mussel species. The rare Triangle Floater, Tidewater Mucket, and Eastern Pondmussel are all found here. The populations of the Tidewater Mucket and the Eastern Pondmussel are particularly significant because young and old specimens have been found, suggesting that these mussels are successfully reproducing.



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